Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A waveguide, comprising:

a first portion extending along a waveguide axis comprising a first chalcogenide glass; and

a second portion extending along the waveguide axis comprising a second chalcogenide glass, wherein the second chalcogenide glass is different from the first chalcogenide glass, wherein the waveguide is a photonic crystal fiber.

2. (Original) The waveguide of claim 1, wherein the first chalcogenide glass has a different refractive index than the second chalcogenide glass.

3. (Original) The waveguide of claim 1, wherein the first chalcogenide glass comprises As and Se.

4. (Original) The waveguide of claim 3, wherein the first chalcogenide glass comprises As_2Se_3.

5. (Original) The waveguide of claim 3, wherein the first chalcogenide glass further comprises Pb, Sb, Bi, I, or Te.

6. (Original) The waveguide of claim 1 or 3, wherein the second chalcogenide glass comprises As and S.

7. (Original) The waveguide of claim 6, wherein the second chalcogenide glass comprises As_2S_3.

8. (Original) The waveguide of claim 1 or 3, wherein the second chalcogenide glass comprises P and S.

9. (Original) The waveguide of claim 8, wherein the second chalcogenide glass further comprises Ge or As.

10. (Original) The waveguide of claim 1, further comprising a hollow core.

11. (Original) The waveguide of claim 1, wherein the first chalcogenide glass has a refractive index of 2.7 or more.

12. (Original) The waveguide of claim 11, wherein the second chalcogenide glass has a refractive index of 2.7 or less.

13. (Original) The waveguide of claim 1, wherein the first chalcogenide glass has a T_g of about 180°C or more.

14. (Original) The waveguide of claim 13, wherein the second chalcogenide glass has a T_g of about 180°C or more.

15. (Original) The waveguide of claim 1, wherein the waveguide has a loss coefficient less than about 2 dB/m for electromagnetic energy having a wavelength of about 10.6 microns.

16. (Original) The waveguide of claim 1, wherein the first portion surrounds a core.

17. (Original) The waveguide of claim 16, wherein the second portion surrounds the core.

18. (Original) The waveguide of claim 16, wherein the second portion surrounds the first portion.

19. (Original) The waveguide of claim 16, wherein the core has a minimum cross-sectional dimension of at least about 10 λ, where λ is the wavelength of radiation guided by the waveguide.

20. (Original) The waveguide of claim 19, wherein the minimum cross-sectional dimension of the core is at least about 20 λ.

21. (Original) The waveguide of claim 16, wherein the core has a minimum cross-sectional dimension of at least about 50 microns.

22. (Original) The waveguide of claim 21, wherein the core has a minimum cross-sectional dimension of at least about 100 microns.

23. (Original) The waveguide of claim 22, wherein the core has a minimum cross-sectional dimension of at least about 200 microns.

24. Cancelled

25. (Currently Amended) The waveguide of claim [[~~24~~]] 1, wherein the photonic crystal fiber comprises a confinement region and the first and second portions are part of the confinement region.

26. (Currently Amended) The waveguide of claim [[~~24~~]] 1, wherein the photonic crystal fiber is a Bragg fiber.

27. (Currently Amended) A method comprising:

providing a waveguide comprising a first portion extending along a waveguide axis including a first chalcogenide glass and a second portion extending along the waveguide axis; and

guiding electromagnetic energy from a first location to a second location through the waveguide,

wherein the waveguide is a photonic crystal fiber.

28. (Original) The method of claim 27, wherein the second portion includes a second chalcogenide glass different from the first chalcogenide glass.

29. (Original) The method of claim 27, wherein the electromagnetic energy has a wavelength of between about 2 microns and 15 microns.

30. (Original) The method of claim 29, wherein the electromagnetic energy has a power of more than about one Watt.

31. (Original) The method of claim 30, wherein the electromagnetic energy has a power of more than about 10 Watts.

32. (Original) The method of claim 31, wherein the electromagnetic energy has a power of more than about 100 Watts.

33. (Original) The method of claim 27, further comprising coupling the electromagnetic energy from a laser into the waveguide.

34. (Original) The method of claim 33, wherein the laser is a CO_2 laser.

35. Cancelled

36. (Currently Amended) The method of claim [[~~35~~]] 27, wherein the photonic crystal fiber is a Bragg fiber.

37-54. Cancelled

55. (New) A waveguide, comprising:

a first portion extending along a waveguide axis comprising a first chalcogenide glass; and

a second portion extending along the waveguide axis and surrounding the first portion, the second portion comprising a second chalcogenide glass, wherein the second chalcogenide glass has a refractive index higher than a refractive index of the first chalcogenide glass.

56. (New) The waveguide of claim 55, further comprising a third portion extending along the waveguide axis comprising a third chalcogenide glass different from the second chalcogenide glass.

57. (New) The waveguide of claim 56, wherein the third chalcogenide glass is the same as the first chalcogenide glass.

58. (New) The waveguide of claim 55, wherein the waveguide is a photonic crystal fiber.

59. (New) The waveguide of claim 58, wherein the photonic crystal fiber comprises a confinement region that includes the second portion.

60. (New) The waveguide of claim 58, wherein the photonic crystal fiber comprises a core extending along the waveguide axis and the second portion surrounds the core.

61. (New) The waveguide of claim 60, wherein the first portion surrounds the core.

62. (New) The waveguide of claim 55, wherein the second portion has an annular cross-section.

63. (New) The waveguide of claim 62, wherein the first portion has an annular cross-section.

64. (New) The waveguide of claim 55, further comprising one or more additional portions extending along the waveguide axis positioned between the first and second portions.